

Notice of Allowability

Application No.

10/064,765

Applicant(s)

YU, CHENG-TA

Examiner

Lisa A Kilday

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to interview on 3/22/4.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 15 August 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date <u>3/22/4</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Allowable Subject Matter

Claims 1-20 allowed.

The following is an examiner's statement of reasons for allowance: Deshmukh et al. (6,235,214) teaches in figure 2 a method for forming an opening, comprising: forming a dielectric layer on a substrate; forming a patterned photoresist layer on the dielectric; removing a portion of the dielectric layer exposed by the photoresist to form a first opening by using the photoresist as a mask; and forming a first liner on surfaces of the photoresist (col. 5, lines 10-14). Prior art does not teach or suggest using the first liner and the patterned photoresist layer as a mask to form a second opening and subsequently forming a second liner on the patterned photoresist layer and using the second liner and patterned photoresist to form a third opening prior to filling the third opening to form a contact or via plug. The advantage of depositing a liner on the photoresist is for greater control in etching and to protect the photoresist.

Claims 10-20 are hereby rejoined and allowed. Claims 10-20 were restricted in paper dated 1/14/04. Nevertheless, in the response of 2/14/04 applicant identified claims 10-20 as "not able to support separate patents" and "are not distinct." Therefore, in view of applicant's admission, the dielectric layer, substrate, patterned photoresist layer, first opening, using patterned photoresist layer as a mask, first liner, second opening, second liner, third opening, and contact or via plug must be identical in scope or an obvious variant of claim 1, and therefore are allowed for the same reason as claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tang et al. (6,211,092), Liang et al. (6,573,177), Singh et al. (6,277,544), Tseng (5,915,177), Shen et al. (6,383,941), Nishizawa (6,613,686), and Li et al. (6,284,149).

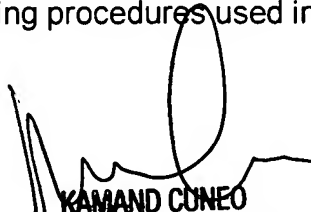
Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0957. See MPEP 203.08.

Any inquiry concerning this communication from the examiner should be directed to Lisa Kilday whose telephone number is (571) 272-1962. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo, can be reached on (571) 272-1957. The fax number for the group is (703) 872-9306. MPEP 502.01 contains instructions regarding procedures used in submitting responses by facsimile transmission.

Lisa Kilday

LAK

3/22/04



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